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EXAMINER

NGUYEN, THUKHANH T

ART UNIT PAPER NUMBER

1722

DATE MAILED: 02/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/986,755

Applicant(s)

KOPPENHOFER, KLAUS

Examiner

Thu Khanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 November 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) 1 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 2-13 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 2-10,12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over UK Patent (2 079 668) in view of Merklingshaus et al (4,932,856).

The UK Patent ('668) teaches an apparatus for forming thermoplastic beaker, comprising an upper tool (60) having a compressed air supply (60a), a lower tool part having at least one blank punch (36) and a shaping part (40), which has an inwardly directed pinched edge (40a) extending around the inner wall of the shaping part, an axially displaceable mold floor (52b) movable between a first position (Fig. 1, 52) and a second position (Fig. 2, 52), an axially displaceable sealing bell (50) surrounding the periphery of the mold floor in the raised position (Fig. 2, 40, 50, 52) for forming a sealed leg (20), a drive (50 c-d) for driving the sealing bell. The apparatus further comprises a plurality a plurality of adjacently and/or successively disposed regions of the resin foil can be deep-drawn at the same time (page 1, lines 71-75); thus, a plurality of molds can be used for simultaneously molding a plurality of beakers (page 2, lines 48-53), and that the leg is sealed at a weld (20d) at the bottom of the beaker.

The UK patent fails to disclose water bore at the mold floor.

Merklingshaus et al disclose an apparatus for thermoforming hollow articles, comprising a plurality of mold cavities (102a-b) having a movable ejecting mold floor (126) connecting to a

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piston member, wherein the mold floor and the piston member (126) includes water cooling channels (134) for cooling the mold and the formed article after molding.

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the UK reference by providing a water cooling channel on the mold floor as taught by Merklinghaus et al in order to facilitate the cooling of the mold and the formed article after the molding process.

In regard to the orientation of the mold cavities, it would have been obvious to one of ordinary skilled in the art to place the multiple mold cavities in different rows in order to increase the number of molds in a mold plate.

In regard to claims 3-10 and 12, the UK reference's apparatus further comprises that the mold floor (52b) and the sealing bell (50) are guided axially relative to one another (Figs. 1-2; 50, 52); a retaining plate (Fig. 1, 50d) connected to a piston (50c) that is displaced in a bore of a base plate for the lower part of the tool (30, 32); wherein the mold floor (52b) is attached to a rod (52c) that is rigidly connected to an ejector plate (52) for moving the mold floor (Fig. 3, 52, 52b, 52c); a carrier plate connected to and for supporting the piston and the rod (Figs. 1-3, 30); and wherein blank punch has a cutting edge (Fig. 1, the top edge of blank punch 35).

In regard to claim 14, the UK reference discloses that a multiple mold systems are used, but for reasons of simplicity, only one mold is described (page 2, lines 48-55). Therefore, the UK reference inherently teaches a plurality of molding cavities with a plurality of ejector plate and rods.

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3. Claims 11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over the UK patent ('668) in view of Merklinghaus et al ('856) as applied to claims 2-10, 12 and 14 above, and further in view of Yaita et al (4,758,394).

In regard to claim 11, The UK patent discloses a sheet thermoforming apparatus as described above, but fails to disclose that the blank punch and the shaping parts are integrally formed as one piece and is made of steel.

Yaita et al disclose an apparatus for forming cups from thermoplastic material, comprising an integral piece of blank punch and shaping parts (20, 30). It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the UK reference by providing an integral piece of blank punch and the shaping parts as taught by Yaita et al in order to prevent part-misalignment problems.

In regard to claim 13, the UK reference fails to disclose that the ring of the shaping part comprises hardened steel. Yaita et al disclose that the male and female molds are made of stainless steel (col. 7, line 37-38). It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the UK reference by providing the ring comprises stainless steel as taught by Yaita et al, because the stainless steel would improve the hardness and thermo conductivity of the shaping ring.

Response to Arguments

4. Applicant's arguments filed February 18, 2005 have been fully considered but they are not persuasive.

The Applicant argued that the UK reference fails to disclose a sealed legs for the containers, and that the crush edge of UK reference consists of two parts that are moved apart when the formed container is removed from the mold (see Remark, page 7). However, the UK reference discloses one page 2, lines 39-45 that:

... the foot 20 is double-walled, that is to say it is constructed from an outer wall 20a and an inner wall 20b which are in mutual connection at two locations, namely at a fold location 20c forming the lower edge of the foot 20, and at a weld 20d at the transit of the beaker bottom.

Because the outer wall 20a and the inner wall 20b is welded at the weld 20d, it forms a sealed leg and would not move apart as alleged by the Applicant. In regard to the multi-row design of the forming tool, the Applicant referred to Figures 4-6 of the UK reference and indicated that these Figures 4-6 would prevent this multi-row design. The examiner fails to see how drawings of the formed containers would prevent the mold from being designed in a multi-row arrangement, while the reference itself has indicated that a plurality of adjacently and/or successively disposed regions of the resin foil can be deep-drawn at the same time (page 1, lines 71-75). This limitation indicated that a plurality of molds located adjacently and successively are used to form a plurality of beakers simultaneously (page 2, lines 48-53). It would have been obvious to one of the skilled artisan to modify the arrangement of the cavities in different rows in order to save space on the mold plate.

The water cooling channel/bore on the mold floor is taught by Merklingshaus et al ('856). It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the UK reference by providing the cooling channel on the mold floor in order to improve cooling of the mold and the formed articles.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thu Khanh T. Nguyen whose telephone number is 571-272-1136. The examiner can normally be reached on Monday- Friday, 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Duane Smith can be reached on 571-272-1166. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TN

DUANE SMITH
PRIMARY EXAMINER

D-A
2-21-06